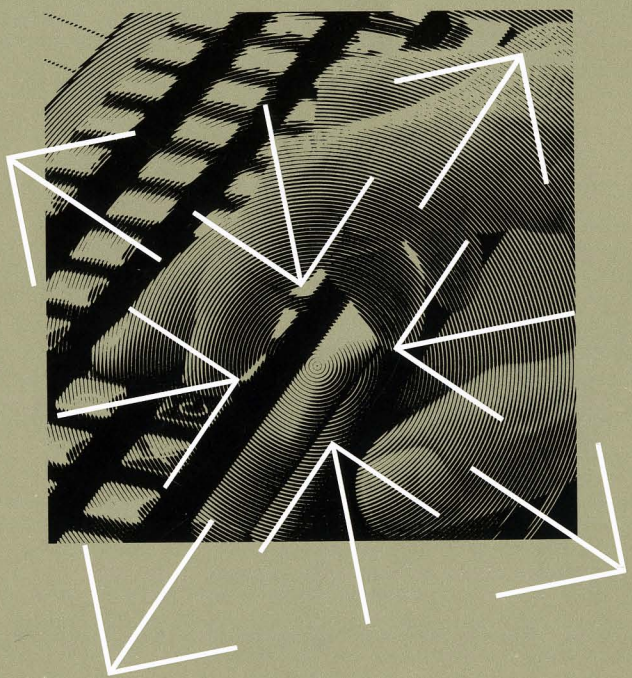
An introduction to the ATARI® Disk Operating System



DOS 3

Though unlikely, it's possible that you may want to convert DOS 2 files from one side of a double-sided diskette into DOS 3 files on the reverse side—in which case you should type **Y** and press **RETURN** in response to this prompt. Usually, you'll be using a separate destination diskette—in which case you should type **N** and press **RETURN** in response to this prompt. You must then switch diskettes during the conversion process, just as if you were using one disk drive.

You can convert files from only one side of a double-sided diskette at a time. After converting files from one side, answer yes to the prompt **Do you have more files to convert (Y/N)?** Then enter new instructions to convert files from the other side.

When the conversion process is complete, this message appears—

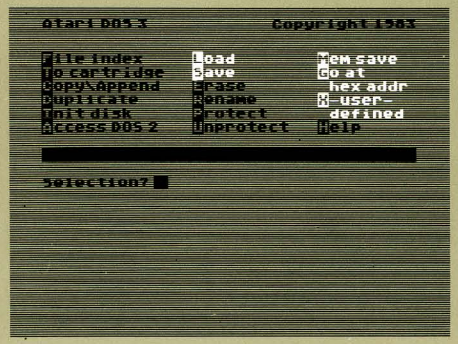
1 file(s) converted to DOS 3
Do you have more files
to convert (Y/N)?

By answering yes, you can go on and convert more files from DOS 2 to DOS 3. If you're finished converting files, replace your DOS 3 program diskette in drive 1, then answer no and press **RETURN** to go back to the DOS menu.

You can use wild cards to convert several files at one time. To convert *all* the files on a DOS 2 diskette, enter ***.*** as your DOS 2 filename.

For more information about DOS

This user's guide covers the most frequently used DOS functions. The *ATARI Disk Operating System Reference Manual* treats these same DOS functions, but includes more details



The reference manual also covers the DOS functions not discussed here: the **Append** function in **Copy/Append**, **Load**, **Save**, **Mem save**, **Go at hex addr**, and **X-user-defined**

These functions, which come into play in writing and managing computer programs, require the technical discussion provided by the reference manual. For a quick overview of what they do, you might want to read the help screens for these functions (see *Help with DOS*, pages 7—8).

Handling errors

Part of using a computer is making mistakes, but your errors rarely do any harm to your files. DOS *traps* your errors and highlights them in the center of your screen. With a few exceptions, each error has a number, so you can look it up conveniently in Appendix C of the *ATARI Disk Operating System Reference Manual.* Each error also has a name that, in most cases, points to the source of the problem. Some common errors and their solutions are listed here.

BOOT ERROR In computer jargon, loading a program into a computer when you first turn it on is called *booting up*, because the computer seems to pull itself up by its bootstraps. This error message appears if you try to load a program from a diskette that does not contain its own DOS (or FMS.SYS) files (see *Why write FMS.SYS files on your data diskettes?*, page 10). Turn off your computer. Make sure that the diskette you're trying to load contains an FMS.SYS file. Then turn on your computer again.

Error 130 - Device Not Found Without first loading FMS.SYS, you may have tried to load a program from a diskette that does not contain FMS.SYS. Insert your DOS program diskette or a data diskette containing FMS.SYS in your disk drive. Then turn on your computer again.

Error 165 - Filename Error You've entered an illegal character as part of a filename, or used too many characters in a filename or its extender (see *Filenames,* pages 15—16). Delete the illegal character or shorten the filename.

Error 144 - Device Done Error You've tried to write data onto a diskette that's write-protected. Remove the write-protect tab. If this error message appears when there's no write-protect tab on the diskette you're using, you may have a bad diskette.

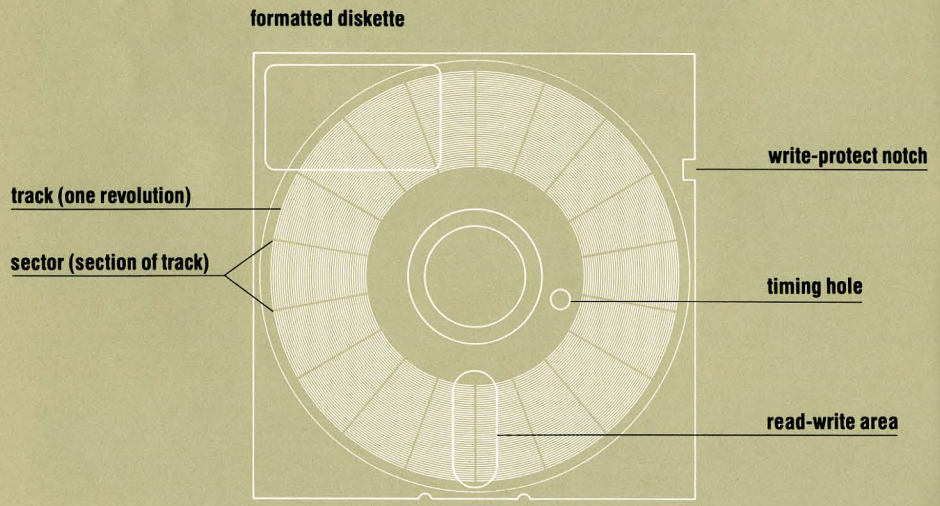
Error 170 - File Not Found The file you've tried to access isn't on the diskette in your source drive. Make sure that you've inserted the right diskette in the disk drive, and check your spelling of the filename.

Insert DOS disk in drive 1 and press RETURN Without having your DOS 3 program diskette in drive 1 of your system, you've tried to use **Copy/Append**, **Duplicate**, **Init disk**, **Access DOS 2**, **X-user-defined**, or **Help**. The files DOS uses for these functions are loaded into the computer only when you ask for them. Follow the instructions of the error message.

Insert DOS disk in drive 1. Press RETURN. You've used **Copy/Append**, **Duplicate**, **Init disk**, **Access DOS 2**, **X-user-defined**, or **Help**, then tried to return to the DOS menu without replacing your DOS 3 program diskette in drive 1. *Wait for the drive's BUSY light to go off,* then insert your DOS diskette, close the latch or door, and press **RETURN.**

Table of contents

1 Introducing DOS 3
3 Getting started with DOS
6 Looking at a file index
7 Help with DOS
8 Initializing a diskette
11 Duplicating a diskette
14 Naming and referring to files
17 To cartridge from DOS
18 Copying files
22 Erasing files from diskette
23 Protecting and unprotecting files
24 Renaming files
24 Converting DOS 2 files to DOS 3
26 For more information about DOS
27 Handling errors
28 DOS dictionary



Introducing DOS 3

What DOS does

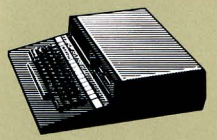
Your ATARI Home Computer's memory retains the information and instructions you enter through its keyboard. But the computer's memory is limited in size, and its contents are erased each time you turn the computer off. For more permanent storage of the information you generate with your computer, you can use your disk drive to *save* the information, in the form of *files*, on data diskettes.

That's where the Disk Operating System—DOS for short—fits into the picture. **DOS (pronounced "doss") is a program that enables your computer and disk drive to work together in storing, retrieving, and otherwise managing your diskette files.** DOS itself is organized in several files, all contained on the Master Diskette included with this guide.

You *must* load DOS into your computer before it can work with your disk drive. Many ready-made computer programs, especially those that come on diskette, already contain a version of DOS, so you don't have to load it separately. But with other programs, especially those that come in cartridge form, you have to load DOS along with the program if you plan to use your disk drive to store, retrieve, or manage information. In any case, you need DOS for many essential tasks: for example, to prepare blank diskettes to store your files, to make backup copies ot your important files and diskettes, and to save and retrieve the computer programs you write using ATARI BASIC and other programming languages.

DOS 3 and your ATARI Home Computer system

You can use DOS 3 with the built-in disk drive on the ATARI 1450XLD™ Home Computer, with an ATARI 1050™ Disk Drive, or with an ATARI 810™ Disk Drive. But the type of 5 1/4-inch data diskettes you should use depends on what kind of system you have. Using DOS 3 and double-density diskettes, you can record about 50 percent more data on each diskette than you can with the earlier ATARI DOS 2 and single-density diskettes (except with the ATARI 810 Disk Drive—see page 2).



WITH AN ATARI 1450XLD HOME COMPUTER with built-in disk drive, use double-sided, double-density diskettes for maximum data storage. Your disk drive can store and retrieve information on both sides of a double-sided diskette.

WITH AN ATARI 1050 DISK DRIVE, use single-sided, double-density diskettes for maximum data storage.

WITH AN ATARI 810 DISK DRIVE, use either single- or double-density, single-sided diskettes. Capable of recording information only in singie density, this disk drive can't take advantage of the increased storage potential of DOS 3..But using double-density diskettes assures you of more reliable data storage—much like using high-quality tapes in sound recordings.

Caution: Never insert a diskette upside down in your disk drive. Doing so can cause damage to the diskette or disk drive.

DOS 3 works with any ready-made *cartridge-based* program that runs on your ATARI Home Computer—even programs that predate DOS 3, including the AtariWriter™ word processor and ATARI BASIC. *With these and other cartridge-based programs, you can always use DOS 3 instead of DOS 2 to prepare data diskettes and manage files.* If you already have a library of diskette files developed with these programs and DOS 2, DOS 3 allows you to convert your files from DOS 2 to DOS 3 (see *Converting DOS 2 files to DOS 3,* pages 24—26).

Unless they're protected, diskette-based programs designed for use with the earlier ATARI Disk Operating System can also be converted from DOS 2 to DOS 3 (see your program user's guide if you're unsure whether a diskette program is protected). With your old protected diskette programs, you must continue to use DOS 2.

How to use this guide

DOS 3 is a powerful, flexible program designed to serve everyone from the beginning computer user to the advanced programmer. This booklet introduces you to the most frequently used functions of DOS 3. With step-by-step instructions, it explains how to load DOS into your computer, prepare diskettes to store your files, duplicate diskettes, name and refer to your files, save and load a computer program, copy and erase files, and convert DOS 2 files to DOS 3. In the back of the guide, you'll find an explanation of some of the more common *error messages* you may encounter while using DOS 3, followed by a brief DOS dictionary. Consult this glossary whenever you're unsure of a term's meaning.

To go through the examples and exercises in this guide, you'll need at least three blank diskettes—one to make a working copy of your DOS 3 Master Diskette, and two to use as practice data diskettes. (The diskettes you need are available from your computer retailer.) Since some of the exercises involve the use of ATARI BASIC, you'll also need a BASIC cartridge if you have an ATARI 400™, 800™, or 1200XL™ Home Computer.

To learn about the less frequently used functions of DOS 3—and for more details on the functions covered here—read the *ATARI Disk Operating System Reference Manual.* The reference manual is a comprehensive, technical guide to DOS 3.

DOS 3 WITH THE 1450XLD. In a few cases, the procedures for using DOS 3 with the ATARI 1450XLD Home Computer vary slightly from the procedures for using the program with other ATARI Home Computer systems. If you have a 1450XLD, look for symbols like the one shown here as you go through this guide. They mark the special steps you must follow to use DOS 3 with your 1450XLD.

Getting started with DOS

Loading DOS

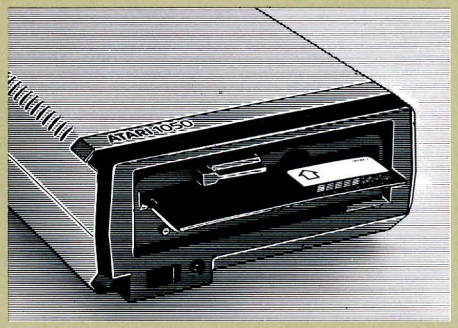
Unless you have an ATARI 1450XLD Home Computer with built-in disk drive, follow these steps to load DOS 3 (along with ATARI BASIC—see page 5) into your computer. If you have an ATARI 1450XLD, see *With the 1450XLD,* page 4.

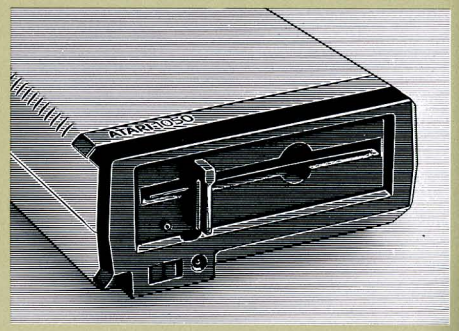
1. Make sure that your computer and disk drive are turned off. If you have an ATARI 400, 800, or 1200XL Home Computer, insert an ATARI BASIC cartridge in your computer's cartridge slot (the left cartridge slot on the ATARI 800). Otherwise, make sure that there's no cartridge in your computer and no diskette in your disk drive.

2. Turn on your disk drive—if you have more than one disk drive in your system, use drive 1. The drive makes a whirring sound when turned on, and the POWER and BUSY lights go on. After a few seconds, the noise stops and the BUSY light goes off.

Caution: Never insert or remove a diskette in your disk drive while the BUSY light is on.

3. When the BUSY light goes off, turn the latch on the front of your ATARI 1050 Disk Drive to the open (horizontal) position or open the door on the front of your ATARI 810 Disk Drive. Remove your DOS 3 Master Diskette from its protective paper sleeve and insert it in your drive, with the label facing up and toward you, until it clicks gently into place. Then turn the latch to the closed (vertical) position or close the door on your disk drive.





4 Turn on your computer. The disk drive's BUSY light goes on again as DOS loads into your computer, and the drive makes a clicking sound. If you turn up the volume on your TV, you can hear it *beep* as DOS loads.

5 When the **READY** prompt (from ATARI BASIC) appears, type **DOS** and press **RETURN.**

WITH THE 1450XLD.

1 With your computer turned off, make sure that there's no cartridge in the computer's cartridge slot or diskette in the disk drive. Turn the disk drive latch to the open (horizontal) position.

2 Turn on your computer. As the POWER light on the computer and the BUSY light on the disk drive go on, the drive makes a whirring sound.

Caution: Never turn your computer on or off with a diskette in the disk drive, and never try to insert or remove a diskette while the disk drive's BUSY light is on. Doing so can damage the diskette or the disk drive.

3 When the BUSY light goes out, remove your DOS 3 Master Diskette from its protective paper sleeve. Insert it in the disk drive, with the label facing up and toward you, until it clicks gently into place.

4 Turn the disk drive latch to the closed (vertical) position. As the drive goes to work again, DOS loads into your computer. When the **READY** prompt (from ATARI BASIC) appears, type **DOS** and press **RETURN**.

For more details on loading programs from diskette with your ATARI 1450XLD, see your computer owner's guide.

DOS with and without BASIC

Naturally, you won't always be using DOS 3 with ATARI BASIC. To load DOS without BASIC if you have an ATARI 400, 800, or 1200XL Home Computer, simply follow the steps explained in the previous section *without* inserting your BASIC cartridge, and omit step 5.

If your ATARI Home Computer is equipped with built-in BASIC, BASIC is loaded into your computer whenever you turn it on, including when you load DOS—*unless* you first insert a program cartridge in the computer's cartridge slot, or press **OPTION** while turning on your computer (see your computer owner's guide for details).

As you've seen, going from BASIC to DOS is easy—just type **DOS** and press **RETURN.** Going from DOS back to BASIC is just as easy; see *To cartridge from DOS,* page 17.

What's on the menu?

Once you've loaded DOS into your computer and, if necessary, typed **DOS** and pressed **RETURN**, the DOS *menu* appears on your TV screen. The menu presents a list of DOS functions. The line below the menu invites you to make a selection. You choose the function you want to use by pressing the first (highlighted) letter of the function's name. That function is then highlighted on the menu, and DOS asks you for the information it needs to proceed (see *Prompts and responses,* below).

On the DOS menu pictured here, the most frequently used menu selections—those DOS functions covered in this guide—are highlighted.

Provided that your DOS 3 Master Diskette is in drive 1 of your system, you can always return to the DOS menu by pressing **ESC** *or* **RETURN**, *whichever key is indicated on your screen.*

Prompts and responses

The questions and requests that DOS displays on your screen are called *prompts.* The answers you type into your computer are *responses.* DOS always prompts you for the information it needs to carry out your wishes. You'll soon become familiar with the most common DOS prompts; since DOS requires the same kind of information for most of its functions, it won't be long before many of your responses become almost automatic. As you use each function of DOS, the program lists its successive prompts and your responses on your screen as you proceed.

P&R

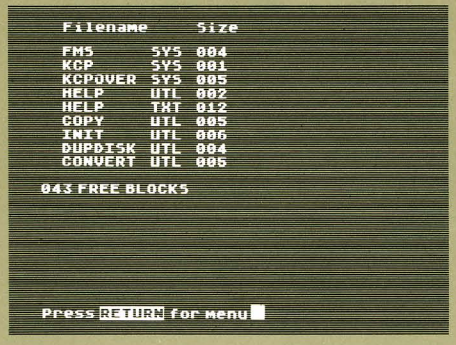
After typing a response into your computer, you must press **RETURN** to *confirm* your response. (Pressing **RETURN** *only* in response to certain prompts tells DOS to supply a preselected, or *default,* response—see *Defaults,* page 15). Prompts that end **(Y/N)?** require a simple yes or no answer. To answer yes, type **Y** and press **RETURN**. To answer no, type **N** and press **RETURN**.

If you make a mistake while typing in a response, press **DELETE BACK S** to erase the error, then type in the correct information. To delete an entire response before you confirm it, press **SHIFT** and **DELETE BACK S** simultaneously. If you discover a mistake in a response you've already confirmed, press **SHIFT** and **CLEAR** simultaneously. This clears all previous prompts and responses from the screen and allows you to begin a procedure over again.

Looking at a file index

Each diskette you use to store information has a *file index* (sometimes called a *disk directory*) that keeps track of the files stored on the diskette, how much room they take up, and how much free space is left on the diskette for storing more information. The **File index** selection on the DOS 3 menu allows you to check what files you have on your diskettes.

Since your DOS Master Diskette itself contains several files, you can try out the **File index** function by taking a look at the directory of those files. With the DOS menu on your screen, type **F**, then press **RETURN** four times.



These are the files that make up the DOS 3 program. The three-digit numbers in the right-hand column indicate how many *blocks* each file occupies on the Master Diskette. (The *ATARI Disk Operating System Reference Manual* explains blocks in detail.) The line below the index tells you how many blocks remain for storing additional information on the diskette.

When you're finished looking at the file index, press **RETURN** or **ESC** to bring the DOS menu back to your screen.

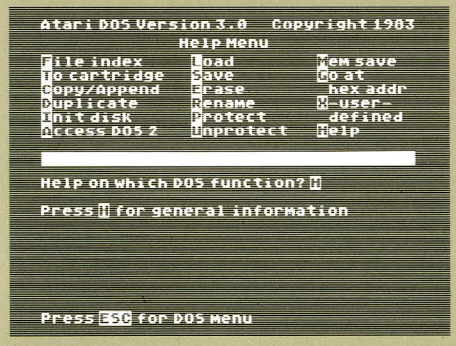
Help with DOS

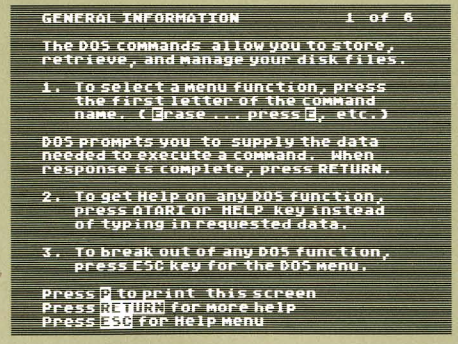
When looking at the file index for your DOS Master Diskette in the previous section, you may have noticed the listings HELP.TXT and HELP.UTL. These are built-in *Help files* that you can call on just about any time you're working with the program, either for general information about using DOS 3 or to refresh your memory on the use of a particular function. The only restriction is that your DOS Master Diskette has to be in your disk drive (in drive 1, if your system includes more than one drive) when you call for help. This is because the Help files are loaded from the Master Diskette into your computer only when you ask for them.

As you try out this feature of DOS 3, don't worry if you don't understand everything on the help screens right away. They're designed to serve as convenient reminders *after* you've become familiar with the program.

General information about DOS

For general information about DOS, select **Help** from the DOS menu by typing **H**. The message **Loading D:HELP.UTL . . .** appears, followed in a few moments by a *Help Menu*. Now type **H**, then press **RETURN** to call up the first of six screens of general information. The bottom three lines on this and every help screen tell you what you can do next. If you have a printer, you can press **P** to print the information on the screen. To go on to the next help screen (if there is one), press **RETURN**. Or press **ESC** to return to the Help Menu.

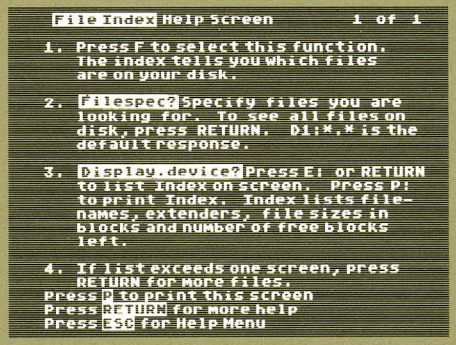




Help with specific DOS functions

From the Help Menu, you can also call up information on a particular DOS function. All you have to do is type the first letter of the function you're interested in, followed by **RETURN**.

For help with a specific DOS function *while you're using it*, just press the **HELP** key on your computer (the HELP key on the ATARI 400 or 800 Home Computer). To try this now, first press **ESC** to return to the DOS menu. Now select the **File index** function by typing **F**. But instead of pressing **RETURN** in response to the first prompt, press the **HELP** (or HELP) key on your computer. The Help Menu appears briefly, along with the message **Help on the way . . .** Then the File Index Help Screen appears.



When you've finished studying the help screens, press **ESC** to return to the Help Menu; then press **ESC** again if you want to return to the DOS menu. When using the **Init disk, Duplicate, Copy/Append,** and **Access DOS 2** functions of DOS 3 (see below and pages 9—13, 18—21, and 24—26), you can return directly from the help screens to the DOS function, without passing through the Help or DOS menus, by pressing **ESC** once.

Initializing a diskette

Unless they're *preformatted,* the diskettes you buy to store your files must be prepared to record information from your computer. This process is called *initializing,* or *formatting,* a diskette. Formatting organizes the surface of a diskette into *tracks* and *sectors* so that your computer can store and retrieve information on it in an orderly way.

Use the **Init disk** function on your DOS 3 menu to format your diskettes.

Caution: Initializing a diskette erases any information that may already be recorded on it. Never initialize your Master Diskette or a data diskette that contains valuable files.

Like the DOS 3 Help files, the file DOS uses to initialize a diskette is loaded from your Master Diskette into your computer only when you ask for it. So your Master Diskette must be in drive 1 of your system when you select **Init disk** from the menu.

To initialize a diskette

With the DOS menu on your screen and your Master Diskette in drive 1, type **I** to select **Init disk.** The message **Loading D:INIT.UTL . . .** appears briefly. When the Initialize Diskette screen appears, follow these steps:

PROMPT	RESPONSE
Format diskette in drive (1-8)?	**1** if you're using one disk drive (If you have an ATARI 1450XLD, see *WITH THE 1450XLD,* page 10.) **2** if you're using two drives (With more than one disk drive, it's more efficient to leave your Master Diskette in drive 1 and use drive 2 to initialize your diskettes.) — then press **RETURN** (If you specify a disk drive that's not turned on, DOS prompts you to turn it on and press **RETURN** before you can proceed.)
Format type?	
1 for single-density	**1** if you have an ATARI 810 Disk Drive, or if you're using single-density diskettes
2 for double-density	**2** if you're using double-density diskettes with an ATARI 1050 Disk Drive or 1450XLD Home Computer —then press **RETURN**
Write FMS.SYS files (Y/N)?	**Y** (see *Why write FMS.SYS files on your data diskettes?,* page 10) —then press **RETURN**
Modify FMS parameters (Y/N)?	**N** (or **RETURN**) —then press **RETURN** (Modifying FMS parameters is a DOS option of use primarily to programmers—see the *ATARI Disk Operating System Reference Manual* for details.)

Why write FMS.SYS files on your data diskettes?

FMS.SYS is a DOS file that enables your computer and disk drive to work together in storing and retrieving files (but *not* to perform any other DOS functions). It's a good idea to write FMS.SYS when initializing data diskettes for use with your cartridge-based programs (the FMS.SYS file takes up little room on a data diskette). You can then load FMS.SYS directly from a data diskette when loading your cartridge-based programs, and use your disk drive to store and retrieve files. Label the diskettes on which you've written FMS.SYS so that you'll know they contain this valuable DOS file.

When initializing double-sided diskettes for use with the ATARI 1450XLD, you need write FMS.SYS on the first side (drive 1) *only* — this is the side of your diskettes from which your dual built-in disk drive loads FMS.SYS.

Now press **RETURN** again. DOS displays your instructions at the top of the screen and prompts you to revise or confirm them—

Press SHIFT-CLEAR to select
different init values, or . . .
Insert diskette in drive # _
and press RETURN to initialize.

Insert the diskette you want to initialize into the specified drive—first removing the Master Diskette if you're working with drive 1—and press **RETURN**.

The message **Now formatting diskette . . .** appears, and your drive makes a clicking noise as it initializes your diskette. The process should take about a minute. If your drive keeps working for much longer, you may have a bad diskette. In this case, press **BREAK** to halt the initialization process, then press **RETURN**. When the BUSY light on your drive goes out, insert a different diskette and press **RETURN** to try again.

WITH THE 1450XLD. When initializing double-sided diskettes with the ATARI 1450XLD, you can initialize *only one side of each diskette at a time.* The dual built-in disk drive on the 1450XLD addresses the first side of a double-sided diskette as drive 1, and the other side as drive 2. So to initialize both sides of a diskette, you must go through the **Init disk** procedure *twice.* The first time, type **1** and press **RETURN** in response to the prompt **Format diskette in drive (1-8)?** When the initialization process is complete, press **RETURN**, then press **SHIFT** and **CLEAR** simultaneously. Then enter your initialization instructions again, but this time, type **2** and press **RETURN** in response to the prompt **Format diskette in drive (1-8)?**

When you're initializing several diskettes at once, it's most efficient to initialize the first sides (drive 1) of all of them, then initialize the other sides (drive 2). This way, you have to enter only two sets of initialization instructions—see *To initialize more diskettes and return to the DOS menu,* page 11.

To initialize more diskettes and return to the DOS menu

Once you've entered your initialization instructions, you can initialize as many diskettes as you like without repeating the entire **Init disk** procedure. Just remove each diskette as it's initialized, insert a new diskette, and press **RETURN**.

For now, initialize at least two more diskettes to use as you continue going through this guide.

When you've finished using the **Init disk** function, replace your DOS Master Diskette, if necessary, in drive 1 of your system—*the Master Diskette must be in drive 1 for you to return to the DOS menu.* Then press **ESC** to return to the DOS menu.

Duplicating a diskette

With the **Duplicate** function of DOS 3, you can create an exact replica of a diskette. The **Duplicate** function copies everything from your original, or *source*, diskette onto another, or *destination*, diskette. This function also formats your destination diskette if you haven't already formatted it using the **Init disk** selection from the DOS menu.

Caution: The **Duplicate** *function erases or writes new information over any information that may already be on a destination diskette. Never use a destination diskette that contains valuable files.*

The **Duplicate** function is sometimes confused with the **Copy** function of DOS (see pages 18—21). The **Copy** function copies only the files you specify from a source diskette. The **Duplicate** function is more efficient when you want to make complete backup copies of data diskettes containing several files.

The file DOS uses to duplicate a diskette is loaded from your Master Diskette into your computer only when you ask for it. So your Master Diskette must be in drive 1 when you select **Duplicate** from the DOS menu.

To duplicate your DOS 3 master diskette

To learn how the **Duplicate** function works, make a duplicate of your DOS 3 Master Diskette. This is also an important safeguard. You should use your duplicate as your working copy of DOS, and keep the Master Diskette itself as a backup copy. Then you can use DOS without worrying about accidental damage to your working diskette.

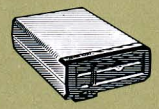
As your destination diskette, use one of the new diskettes you initialized when going through the previous section.

With the DOS menu on your screen and your Master Diskette in drive 1, type **D**. The message **Loading D:DUPDISK.UTL . . .** appears briefly. When the Duplicate Disk screen appears, follow these steps:

PROMPT	RESPONSE
Source drive number?	1
Destination drive number?	1 if you're using one disk drive (including the built-in drive on the ATARI 1450XLD—see *WITH THE 1450XLD,* page 13) 2 if you're using two disk drives —then press **RETURN**

How you proceed from here depends on whether you're working with one or two disk drives.

WITH ONE DISK DRIVE, the computer prompts you to—
Insert source disk in drive 1
press RETURN
If you were duplicating a data diskette, you would now insert it in your disk drive, then press **RETURN**. Since in this case the source diskette (your DOS Master Diskette) is already in your drive, just press **RETURN**. As duplication begins, your disk drive and computer read a certain amount of information from the source diskette, then prompt you to—
Insert destination diskette in drive 1
press RETURN
When you've responded to this prompt, your system writes the information it has read from the source diskette to the destination diskette, then repeats the previous prompt. You'll usually have to switch your source and destination diskettes several times to duplicate a diskette using one disk drive.



WITH TWO DISK DRIVES, the computer prompts you to—
Insert source disk in drive 1
Insert destination disk in drive 2
press RETURN
If you were duplicating a data diskette, you would now insert it in disk drive 1. Since in this case the source diskette (your DOS Master Diskette) is already in drive 1, just insert your destination diskette in drive 2 and press **RETURN.**

WITH THE 1450XLD. When you're duplicating a diskette with the ATARI 1450XLD, DOS displays an additional prompt if you specify your source and destination drive numbers as 1 and 2 or 2 and 1—
Are the source and destination the same diskette (Y/N)?
In some cases, you may want to duplicate one side of a double-sided diskette on the reverse side—in which case you should type **Y** and press **RETURN** in response to this prompt. When duplicating for the purpose of making a backup copy, however, you'll want to use a separate destination diskette—in which case you should type **N** and press **RETURN** in response to this prompt. You must then switch diskettes during the duplication process, just as if you were using one disk drive.

You can duplicate only one side of a double-sided diskette at a time. After duplicating one side, press **SHIFT** and **CLEAR** simultaneously, then enter new duplication instructions to duplicate the other side.

During the duplication process, DOS keeps track of how many blocks of information it has duplicated and updates the count on your screen—
xx blocks remain to be read
xx blocks remain to be written
When there are 0 blocks left, the duplication process is complete.

Put your original DOS 3 Master Diskette in a safe place (see your computer or disk drive owner's guide for tips on storing diskettes). Label your new copy of the DOS diskette something like "DOS 3—Working Copy" (see your disk drive or computer owner's guide for the correct way to label diskettes). Attach a *write-protect tab* to it (see *Using write-protect tabs,* page 14), and use the copy as your DOS diskette from now on.

To duplicate another diskette, press **RETURN** (or **SHIFT** and **CLEAR** simultaneously), then enter new duplication instructions. When you've finished using the **Duplicate** function, insert your DOS diskette in drive 1 and press **ESC** to return to the DOS menu.

Using write-protect tabs

Before duplicating a diskette or copying files from one diskette to another, it's a good idea to attach a write-protect tab to your source diskette. (Included with every package of diskettes that you buy, these tabs are adhesive but can easily be removed.) When folded over the notch in the edge of a diskette, a write-protect tab prevents your disk drive from writing information over any files that may already be there.

Particularly when you're using one disk drive to duplicate or copy files, you might mistakenly insert your source diskette when your disk drive is ready to write information onto the destination diskette. A write-protect tab on the source diskette prevents the drive from writing over (and destroying) your original data.

Naming and referring to files

To manage your files with DOS, you have to give each file a distinctive *filename*. You also have to use a *device code* to tell your computer what part of your system—for example, disk drive 1—you want to handle the file at any particular time. Taken together, the device code and the filename that you specify make up a *filespec* (short for "file specification"). Here's what a typical filespec looks like:

D1: FILENAME.EXT

Device code
Specifies disk drive 1.

Filename
May be up to eight characters, optionally followed by a period and an extender of up to three characters.

Device codes

With the DOS menu on your screen, select the **File index** function again by typing **F**. When DOS prompts you to enter a filespec, press **RETURN** *once*—now DOS displays **D1:*.***, which is a *default* filespec (see *Defaults,* page 15). The **D1:** is a device code; here, it represents the part of your system you want DOS to use in generating a file index. The **D** stands for disk drive, and the **1** specifies the number of the drive in your computer system. The colon (:) must always be used with a device code.

There are also codes for the other devices that DOS can access or activate. When you press **RETURN** a second time after selecting the **File index** function, DOS prompts you for a display device. The default display device is **E:**, which stands for your TV screen or monitor; you could also use **P:**, which stands for a printer. (**C:**, for cassette program recorder, is another device code that you might specify when using DOS, your disk drive, and a program recorder to manage files.) If you have a printer, you can try printing out the file index for your DOS diskette—type **P:**, then press **RETURN**. Or just press **RETURN** to display the file index on your screen.

Defaults

For your convenience, *default* responses to several of its own prompts are built in to DOS 3. When you press **RETURN** in response to one of these prompts, DOS displays the default response after the prompt so that you can check it. You can then press **RETURN** again to confirm your choice, or use **DELETE BACK S** to change your response.

Since most people who use DOS have only one disk drive, one of the more convenient defaults in DOS is **D1:**—disk drive 1 of your computer system. You've seen how DOS defaults to this device when you press **RETURN** in response to a **Filespec?** prompt. DOS also defaults to **D1:** as a source and destination device—provided that you press **RETURN** in response to the appropriate prompts—when you're using most other DOS functions.

One other tip worth remembering: If you have only one disk drive, you don't have to specify a drive number when entering the device code for it. Though the program prompts you to enter **Dn:**, where **n** stands for the drive number, DOS understands **D:** to mean drive 1.

Filenames

Each file stored on a given diskette must have a unique filename; otherwise, your computer system wouldn't know which file you wanted to work with.

Filenames may be up to eight characters in length, followed if you like by a period and an *extender* of up to three characters. Except for the period that separates the filename proper from the optional extender, all the characters in a filename must be letters or numbers, not punctuation marks or other symbols. So you could use—

these filenames:	but not these:
LETTER1	LETTER-1
1LETTER	PROJ #6-J
PROGRAM.6J	PROG.6J.BAS
ACCT4321	ACCOUNT4321

If you try to enter an invalid filename, DOS refuses to accept it and displays **Filename Error** on your screen.

Extenders, sometimes called file *types,* can be useful when you're naming related but distinct files that you might want to manage as a group (see *Wild cards*, below). For example, you could use BAS as an extender when naming all the programs you write in ATARI BASIC—PROGRAM1.BAS, PROGRAM2.BAS, and so on. You might use LETTER.BUS to identify a business letter, and LETTER.SIS for a letter to your sister. If you were writing a book with a word processing program, you might store the various chapters on diskette as CHAPTER.1, CHAPTER.2, and so on.

Wild cards

In a game of poker, wild cards are valuable because they stand for any card you choose. Similarly, DOS recognizes special *wild card* symbols that can stand for any character or combination of characters in a filename. A major convenience, wild cards enable you to refer to a group of files rather than to each one individually.

The two wild cards recognized by DOS are the question mark (?), which stands for any single character, and the asterisk (*), which stands for any combination of characters in a filename proper or in an extender. Working with the following files, for example, you could use *.BAS to refer to all the BASIC program files. You could also use PROGRAM?.* to specify *all* the program files, including PROGRAM1.PIL, or LETTER?.BUS to refer to all the business letter files.

PROGRAM1.BAS	LETTER1.BUS
PROGRAM2.BAS	LETTER2.BUS
PROGRAM3.BAS	LETTER3.BUS
PROGRAM1.PIL	LETTER.SIS

You should now understand the default filespec used by DOS in a **File index** procedure. When you press **RETURN** in response to the **Filespec?** prompt, you see **D1:*.***. The **D1:**, as you know, is the default device code (disk drive 1). The ***.*** stands for *all* files on the diskette you want to index.

To try using wild cards in a filespec, select **File index** from the DOS menu again. Leaving your DOS diskette in drive 1 of your system, type **D:*.UTL** in response to the **Filespec?** prompt. Then press **RETURN** three times. Your file index shows all the files (and only those files) on your DOS diskette that have a UTL extender.

To cartridge from DOS

With ATARI BASIC (whether it's in cartridge form or built in to your computer) or any other cartridge-based programming language, you can write your own programs to run on your ATARI Home Computer. And you can use programming language commands to store and retrieve your programs on diskette (provided that you first load the FMS.SYS file, either from your DOS diskette or a data diskette—see *Why write FMS.SYS files on your data diskettes?,* page 10). But you need DOS to manage your program files in other ways—for example, to copy or erase them. By enabling you to shift control of your computer from DOS to a programming language cartridge, the **To cartridge** function on the DOS menu allows you to use DOS and a programming language at the same time.

The procedures described in this section are based on the assumption that you're using ATARI BASIC (and that you've loaded BASIC along with DOS—see *Loading DOS*, pages 3—6). However, the same procedures apply to using DOS with other programming language cartridges.

From BASIC to DOS and back again

When you load BASIC and DOS together, as explained on pages 3—5, the **READY** prompt appears. Again, going from BASIC to DOS is easy—just type **DOS**, then press **RETURN**. The DOS menu appears on your screen.

To go from DOS to BASIC (or any other cartridge-based program), select **To cartridge** from the DOS menu by typing **T** The **READY** prompt reappears.

Saving and loading a BASIC program

The BASIC computing language includes its own SAVE and LOAD instructions that you use to store and retrieve your programs on diskette. Note that these BASIC commands are *not* the same as the **Save** and **Load** functions on the DOS menu, which are explained in the *ATARI Disk Operating System Reference Manual.* To try saving and loading a BASIC program, first select **To cartridge** from the DOS menu. When the **READY** prompt appears, type the following program exactly as it appears (even the spaces and punctuation are crucial in programming). Press **RETURN** at the end of each line. If you make a mistake, you can press **DELETE BACK S** to erase it.

```
10 PRINT "THIS LINE REPEATS ITSELF"
20 GOTO 10
```

You've just written a two-line BASIC program that tells your computer to print—display on your screen—**THIS LINE REPEATS ITSELF** and then to go back to the previous instruction. You can imagine what's going to happen when this program runs.

Try it. Type **RUN**, then press **RETURN**. When you've seen enough, press **BREAK** to stop the program from running.

To store this (or any) BASIC program on diskette, you have to enter the appropriate BASIC command—**SAVE**—followed by a filespec that DOS understands. Insert a diskette that you've initialized to use as a practice data diskette in drive 1, replacing your DOS diskette. Then type **SAVE "D:PROGRAM1.BAS"** and press **RETURN**. As your disk drive goes to work, your program is recorded on diskette.

Though it's been stored on diskette your program also remains in your computer's memory. To *see* the program load back into your computer, first type **NEW** and press **RETURN** to clear it from memory. Then press **SHIFT** and **CLEAR** at the same time to clear it from your screen. Next, type **LOAD "D:PROGRAM1.BAS"** and press **RETURN**. As your disk drive goes to work, the program is loaded back into your computer. Finally, type **LIST** and press **RETURN** to bring your program back up on your screen.

Now, though you've loaded it into your computer's memory, the program also remains on your data diskette. Once saved, your files remain on diskette until you use the **Erase** function on the DOS menu to delete them (see page 22).

Copying files

With the **Copy/Append** function on the DOS menu, you can copy your files from one diskette to another. (**Copy/Append** is actually two functions in one. Used infrequently, the **Append** function is discussed only in the *ATARI Disk Operating System Reference Manual.*) Unlike the **Duplicate** function on the DOS menu (see pages 11—13), **Copy/Append** copies only the files you specify on a diskette, not the entire diskette.

The most common reason for copying a file is to create a backup of your original. This protects you from losing a file—and perhaps many hours of work—if the original is damaged or accidentally erased. Always put your backup files on a separate diskette.

You can also use **Copy/Append** to create a modified version of an original file. Suppose you want two slightly different versions of the same business letter. Just write one version, use DOS to copy it, and then revise the copy as you wish. The same technique is useful when you're writing programs that include similar sets of instructions.

CAUTION: To copy a file onto the same diskette (or the same side of a double-sided diskette) as the original, you must assign the copy a different filename from the original.

Creating some practice files

When going through the previous section of this guide, you created a short program in BASIC and saved it on a data diskette as PROGRAM1.BAS. To learn how to use the **Copy/Append** function, create a few more practice files.

Load DOS and BASIC, if necessary (see pages 3—6); if you've already done so and have the DOS menu on your screen, select **To cartridge**. Insert your data diskette (the one containing your PROGRAM1.BAS file) in drive 1 of your system. When the **READY** prompt appears, type the three SAVE commands below. Press **RETURN** after each line and wait while your disk drive saves the file before proceeding. In effect, these files are nothing more than filenames, but they're enough for you to work with as you learn how to copy files.

SAVE "D:PROGRAM2.BAS"
SAVE "D:PROGRAM3.BAS"
SAVE "D:PROGRAM1.PIL"

To copy your files onto a backup diskette

The file DOS uses to copy your files is loaded from your DOS diskette into your computer only when you ask for it, so insert your DOS diskette in drive 1 of your system before starting a **Copy** procedure. And remember, before copying files, that it's always a good idea to attach a write-protect tab to a source diskette, just as when you duplicate an entire diskette (see *Using write-protect tabs,* page 14).

Select **Copy/Append** from the DOS menu by typing **C**. The message **Loading D:COPY.UTL . . .** appears briefly. When the Copy Utility screen appears, follow these steps to copy your PROGRAM1.BAS file:

PROMPT	RESPONSE
Append (Y/N)?	**RETURN** (this selects the default response, no)
Source device?	**RETURN** *twice* (the first **RETURN** tells DOS to default to drive 1 as the source device, and the second **RETURN** confirms this response)
Source filename?	**PROGRAM1.BAS** —then press **RETURN**
Destination device?	**D1:** if you're using one disk drive **D2:** if you're using two disk drives —then press **RETURN**
Destination filename?	**PROGRAM1.BAS** —then press **RETURN**

What happens next depends on whether you're working with one or two disk drives. (If you have an ATARI 1450XLD, see *WITH THE 1450XLD*, below.)

WITH ONE DRIVE, this prompt always appears—
Are the source and destination the same diskette (Y/N)?
To make a *backup* copy of your file, respond by typing **N** and pressing **RETURN**. (To copy the file onto the same diskette, you'd type **Y** and press **RETURN**—*but first be sure that your destination filename is different from your source filename.*)

Next, the prompt **Insert source disk, press RETURN** appears. Insert the diskette containing your practice files in your drive, then press **RETURN**. The message **Copying D1: PROGRAM1.BAS to D1:PROGRAM1.BAS** appears while your system reads the file from your source diskette. Then the prompt **Insert destination disk, press RETURN** appears. Replace your source diskette with another initialized data diskette, then press **RETURN**. Your system then writes the file onto your destination diskette.

When copying very large files (or several files at once) from one diskette to another with one disk drive, you may have to switch your source and destination diskettes several times.

WITH TWO DRIVES, the prompt **Insert source disk. Insert destination disk. Press RETURN** appears. Insert the diskette containing your practice files in drive 1 and another initialized data diskette in drive 2, then press **RETURN.** The message **Copying D1:PROGRAM1.BAS to D2:PROGRAM1.BAS** appears while your system copies the file from your source diskette to your destination diskette.

WITH THE 1450XLD. When you're copying files with the ATARI 1450XLD, DOS always displays the prompt—
Are the source and destination the same diskette (Y/N)?
In some cases, you may want to copy files from one side of a double-sided diskette onto the reverse side (or even onto the same side)—in which case you should type **Y** and press **RETURN** in response to this prompt. (When copying a file onto the same side of a diskette as the original, remember that *your destination filename must be different from your source filename.*) When making backup copies, however, you'll want to use a separate destination diskette—in which case you should type **N** and press **RETURN** in response to this prompt. You must then switch diskettes during the copying process, just as if you were using one disk drive.

You can copy files from only one side of a double-sided diskette at a time. After copying files from one side, press **RETURN** (or **SHIFT** and **CLEAR** simultaneously), then enter new instructions to copy files from the other side.

With one or two disk drives, your computer tells you when the copying process is complete by displaying the message—
1 file(s) copied.
Do you have more files to append or copy (Y/N)?
Type **Y** and press **RETURN,** then go on to learn how to copy more than one file at a time.

Using wild cards to copy a group of files

Suppose you want to make backup copies of all four of your practice files—PROGRAM1.BAS, PROGRAM2.BAS, PROGRAM3.BAS, and PROGRAM1.PIL. You can use wild cards to copy all four at once—a time-saving alternative to copying them one at time.

To use wild cards to copy all your practice files, follow the same procedure you use to copy one file, but when your computer prompts you to enter the source and destination filenames, type **PROGRAM?.*** —using the **?** to stand for the numbers in all four filenames, and the ***** to stand for the extenders in all four filenames.

When you press **RETURN** after entering the destination filename, your computer asks, **Copy all specified files (Y/N)?** Type **Y** and press **RETURN**, then insert your source and destination diskettes in your disk drive or drives as necessary. Your system copies all four files one after another, without pausing between them—although if you were copying several long files using one disk drive, you'd probably have to switch source and destination diskettes several times.

When you answer no to the prompt **Copy all specified files (Y/N)?**, your computer displays each filename in the group one at a time and asks if you want to copy it. This way, you can choose which files in a group you want to copy.

When you've finished copying your files, replace your DOS diskette in drive 1. Then answer no to the question **Do you have any more files to append or copy (Y/N)?** or just press **ESC** to return to the DOS menu.

Finally, after making backup copies of your files, it's a good idea to label your destination diskette something like BACKUP FILES. (See your disk drive or computer owner's guide for the correct way to label diskettes.)

Erasing files from diskette

You can remove a file from a diskette by erasing, or deleting, it with the **Erase** function on the DOS menu. Erasing out-of-date files, of course, opens up space on your data diskettes for storing more information. After a file is erased from a diskette, its filename disappears from the file index for that diskette.

CAUTION: Use the **Erase** *function with care—it's permanent. Once you've erased a file, there's no getting it back.*

For practice, try erasing the PROGRAM1.BAS file from your BACKUP FILES data diskette. If necessary, insert this diskette in your disk drive (drive 2 if you're working with two drives), then type **E** to select **Erase** from the DOS menu.

When your computer prompts you to enter the filespec, type **D1:PROGRAM1.BAS** if your data diskette is in drive 1, or **D2:PROGRAM.BAS** if it's in drive 2, then press **RETURN**. To doublecheck, the computer asks if you want to erase the specified file. When you type **Y** and press **RETURN**, the message **Erasing D1:PROGRAM1.BAS** (or **D2:PROGRAM1.BAS**) . . . appears as your system proceeds to erase the file. When the process is complete, your computer tells you that the specified file has been erased. Then you can press **RETURN** or **ESC** to return to the DOS menu.

With wild cards in your filespec, you can erase as many files as you wish in one operation. To try this, erase the two remaining files with the BAS extender on your BACKUP FILES diskette. Follow the same procedure you use to erase one file, but when your computer prompts you to enter the filespec, type **D1:*.BAS** (or **D2:*.BAS** if you're using drive 2).

When you press **RETURN** after entering a filespec that includes a wild card, your computer asks, **Erase all specified files (Y/N)?** And even when you answer yes to this question—because erasing a group of files is a decisive step to take—the computer asks, **Are you sure (Y/N)?** To erase all the specified files, type **Y** and press **RETURN**. Your system displays the name of each specified file on your screen as it carries out your instructions. Then this message appears—**Job completed. 2 files Erased**

When you want to erase several, but not all, of the files in a group you've specified with wild cards, answer no to the question **Erase all specified files (Y/N)?** Then your computer displays each filename in the group one at a time, allowing you to select those you want to erase. This operation takes less time than going through the entire **Erase** procedure for several individual files.

When you've finished using the **Erase** function, press **RETURN** or **ESC** to return to the DOS menu.

Protecting and unprotecting files

For a variety of reasons, you may want to place a *lock* on selected diskette files. Data diskettes can hold several files, and it's not uncommon to forget what's in a particular file. When you're doing your spring cleaning—erasing out-of-date files from your diskettes—there's always a chance that you'll erase a valuable file by mistake. If you share your computer system with colleagues or family members, the chance of an accident increases.

You can use the **Protect** function on the DOS menu to guard your files. By placing a lock on the files you select, the **Protect** function prevents them from being erased, renamed, or otherwise changed until you cancel their protected status using the **Unprotect** function. (Protecting files on a diskette, however, does not prevent the diskette from being duplicated or reinitialized.)

UNPROTECT

Try out these functions with the one file remaining on your BACKUP FILES diskette, PROGRAM1.PIL. With the DOS menu on your screen, type **P** to select **Protect**. Then enter the filespec for PROGRAM1.PIL, and confirm your instructions by responding yes to the following prompt. As your system goes to work protecting the specified file, the message **Protecting PROGRAM1.PIL** appears on your screen. When the process is complete, your computer tells you that the specified file has been protected.

Now check the file index for your BACKUP FILES diskette. The name of each protected file in a file index is preceded by an asterisk (*). If you now tried, for example, to erase PROGRAM1.PIL from your diskette, the message **ERROR 167 - File protected** would appear on your screen.

To unlock your PROGRAM1.PIL file, start by selecting **Unprotect** from the DOS menu, enter the filespec for PROGRAM1.PIL, and confirm your instructions by responding yes to the following prompt. Afterwards, check the file index to see that the asterisk has been removed.

You can use wild cards in your filespec to protect or unprotect several files (on the same data diskette) at one time.

Renaming files

Changing the name of a file is easy, but you must remember to choose a unique filename. If the new filename you specify is already in use on the diskette containing the file to be renamed, the message **ERROR 174 - Duplicate filename** appears on your screen.

Suppose the PROGRAM1.PIL file on your BACKUP FILES diskette is a program that computes the interest paid on a loan, and you want to give it a more descriptive filename such as INTEREST.PIL. Select **Rename** from the DOS menu, then respond to the following prompts as necessary, entering the old filename (PROGRAM1.PIL) as part of the old filespec, and the new filename (INTEREST.PIL) as part of the new filespec. DOS tells you when the file has been renamed; you can verify that it has been by checking the file index for your BACKUP FILES diskette.

Although you can use wild cards to rename a group of files on the same diskette, be sure that you're not creating duplicate filenames with your new filespec. For example, you could use *.XYZ in your new filespec when renaming files called PROGRAM1.BAS and PROGRAM3.BAS—the new filenames would have XYZ rather than BAS as an extender. But you couldn't use BASICPRO.* in your new filespec, because the new filenames would be identical—DOS would display a **Duplicate filename** error message.

Converting DOS 2 files to DOS 3

The **Access DOS 2** function allows you to convert files you've stored using the earlier ATARI Disk Operating System, DOS 2, to the DOS 3 format. In effect, this function copies the DOS 2 files you specify onto a diskette formatted with DOS 3.

The file DOS 3 uses to convert your DOS 2 files is loaded into your computer only when you select the **Access DOS 2** function from the menu, so your DOS 3 program diskette must be in disk drive 1 when you select this function.

Suppose you have a data diskette in the DOS 2 format that contains files created with the AtariWriter word processor. You want to transfer a file named SALESREP.MAY to a DOS 3 data diskette. (If you have your own files in the DOS 2 format, you may want to try this procedure with one of those files.)

Have ready a data diskette that you've initialized with DOS 3 to receive the converted file. And remember—when converting files, just as when you're copying files or duplicating diskettes, it's a good idea to attach a write-protect tab to your source diskette (see *Using write-protect tabs*, page 14). With your DOS 3 program diskette in drive 1, select **Access DOS 2** from the DOS 3 menu. When the Access DOS 2 Utility screen appears, follow these steps:

PROMPT	RESPONSE
Source drive number?	1 —then press **RETURN**
DOS 2 filename?	SALESREP.MAY —then press **RETURN**
Destination drive number?	**1** if you're using one drive **2** if you're using two drives —then press **RETURN**
DOS 3 filename?	SALESREP.MAY —then press **RETURN**

What happens next depends on whether you're working with one or two disk drives. (If you have an ATARI 1450XLD, see *WITH THE 1450XLD*, below.)

WITH ONE DRIVE, the prompt **Insert source disk, Press RETURN** appears. Insert the diskette containing your DOS 2 files in your drive, then press **RETURN.** The message **Converting D1:SALESREP.MAY to D2:SALESREP.MAY** appears while your system reads the file from your source diskette. Then the prompt **Insert destination disk, Press RETURN** appears. Replace your source diskette with an initialized DOS 3 data diskette, then press **RETURN**. Your system then writes the converted file onto your destination diskette.

When converting very large files (or several files at once) with one disk drive, you may have to switch your source and destination diskettes several times.

WITH TWO DRIVES, the message **Insert source disk. Insert destination disk. Press RETURN** appears. Insert the diskette containing your DOS 2 files in drive 1 and an initialized DOS 3 data diskette in drive 2, then press **RETURN.** The message **Converting D1:SALESREP.MAY to D2:SALESREP.MAY** appears while your system converts the file and copies it from your DOS 2 source diskette to your DOS 3 destination diskette.

WITH THE 1450XLD. When you're converting files with the ATARI 1450XLD, DOS displays an additional prompt if you specify your source and destination drive numbers as 1 and 2 or 2 and 1—

Are the source and destination the same diskette (Y/N)?

A Warner Communications Company

Every effort has been made to ensure the accuracy of the product documentation in this manual. However, because we are constantly improving and updating our computer software and hardware, Atari, Inc. is unable to guarantee the accuracy of printed material after the date of publication and disclaims liability for changes, errors or omissions.

No reproduction of this document or any portion of its contents is allowed without specific written permission of Atari, Inc., Sunnyvale, CA 94086.

©1983 ATARI, INC. ALL RIGHTS RESERVED. PRINTED IN SINGAPORE C062288 REV. A